Extron® Electronics

INTERFACING, SWITCHING AND DISTRIBUTION

User's Manual

MKP 2000

Remote Control Panel

68-971-01 **Rev. C**
01 07

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Precautions

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterias usadas siguiendo las instrucciones del fabricante.

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1001 East Ball Road
Anaheim, CA 92805, USA

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

Japan:

Extron Electronics, Japan
Kyodo Building
16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文

这个符号提示用户该设备用户手册中
的操作和维护说明。
这个符号警告用户该设备机壳内暴
露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必用有地线供电系统供电。第三条线（地线）是安设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有备后或桌面电源的电源线，或任何接到市电系统电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备部没有用户可以更换的零件。为避免出现触电危不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使与厂家推荐的相同或相近型号的电池。按照生产厂的

议处理废弃电池。

Quick Start Guide — MKP 2000

Install and set up the MKP 2000 as follows:

Step 1

Turn all of the equipment off, or disconnect it from its power source.

Step 2

Install the cables to and from the control panel in a wall, podium, or desk. See "Rear Panel and Side Panel Connections" in chapter 2, "Installation," for guidelines.

Step 3

Prepare the wall, podium, desk, or other surface to mount the MKP. See "Preparing the site and installing the mounting bracket (mud ring) or wall box" in chapter 2, "Installation."

Step 4

Install the control panel in a wall, podium, desk, or other surface. See "Mounting the MKP to the mounting bracket (mud ring) or wall box" in chapter 2, "Installation."

Step 5

Connect the input and output cables. See "Rear Panel and Side Panel Connections" in chapter 2, "Installation," for guidelines.

Step 6

Connect the power supply. See "Power supply wiring" in chapter 2, "Installation."

Step 7

Connect power cords and turn on the equipment in the following order: (1) output devices such as projectors or monitors, (2) the connected matrix switcher, and (3) input devices such as DSSs or cable boxes.

Step 8

If necessary, set the control panel's and matrix switcher's IP parameters. See "Viewing and configuring the IP and MKP setup parameters" in chapter 3, "Local Operation," or "System Settings Page" in chapter 5, "HTML Operation."

Step 9

If necessary, set the control panel's RS-232 port for pass-through or no-pass-through mode, and specify whether the MKP is the primary device (connected to the switcher) or the secondary device (connected through another device). See "Viewing and configuring the IP and MKP setup parameters" in chapter 3, "Local Operation," or "System Settings page" in chapter 5, "HTML Operation."

Quick Start Guide — MKP 2000, cont'd

Step 10

Program the control panel with the size of the connected switcher. See "System Settings page" in chapter 5, "HTML Operation."

Step 11

Use the control panel to select inputs and outputs. See "Front Panel Operations" in chapter 3, "Local Operation."

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Chapter One

Introduction

About the MKP 2000 Remote Control Panel

This manual provides installation and operation instructions for the Extron MKP 2000.

About the MKP 2000 Remote Control Panel

The MKP 2000 is a network-ready remote control panel that can control any Extron matrix switcher. The MKP's RS-232 ports allow it to communicate with other devices (another MKP or a matrix switcher) locally and its Ethernet port allows it to communicate with multiple devices.

An MKP 2000 user can remotely create ties by specifying an input and then an output to be tied to the input. The MKP can also be dedicated to a specific group of inputs and outputs when configured using the built-in Web pages.

The MKP 2000 panel is mounted in a two-gang wall plate that can be installed in a wall, conference table, podium, or other convenient location.

The matrix switcher system can have up to 128 inputs and 128 outputs. However, for example, a conference room may have three input devices and two output devices; a training room next door may have four input devices and one output device; and so on. Typically, each room will have one or more MKP control panels assigned to it, with each MKP limited to the inputs and outputs that it can control.

In the example in figure 1-1, the "presentation room" (top, center) has one output device, a projector (C), and four input devices: a video camera (13), a laptop computer (12), and two PCs (11 and 14). The "Media Room" (bottom, right) contains the matrix switcher, as well as other inputs (1-6) and possibly some control device(s).

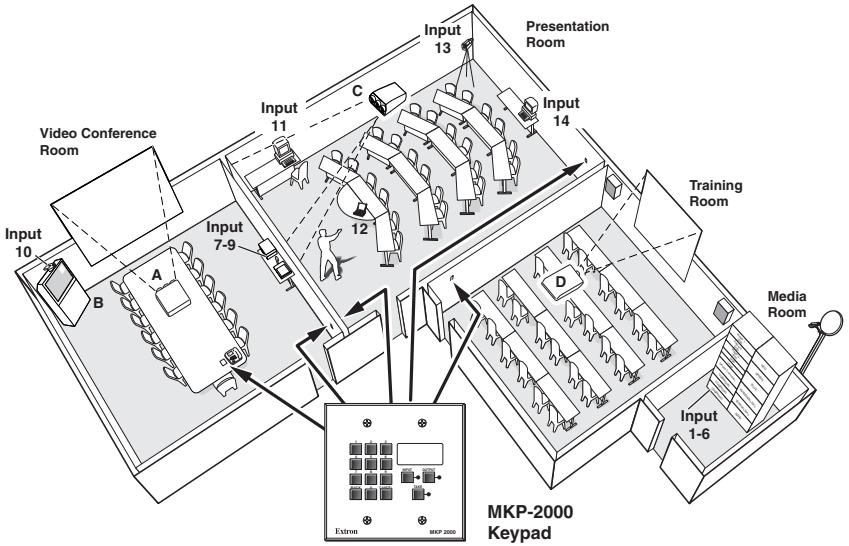


Figure 1-1 — Typical MKP 2000 applications

An overflow crowd in the video conference room and/or the training room may need to see a lecture going on in the presentation room. In this case, the video camera (input 13) must be available to those other rooms. Therefore, the MKPs in the video conference and training rooms will be programmed to allow selection of input 13 for displays in those rooms, in addition to any video sources and/or displays there.

RS-232 connection to the switcher

Any number of MKP 2000s can be connected to a matrix switcher through its RS-232 port, but one MKP must be designated as the primary controller. Other MKPs can be daisy-chained through the primary MKP remote control panel.

Ethernet connection to the switcher

Any number of MKP 2000s can be connected to a matrix switcher as part of an Ethernet local area network (LAN).

Application diagram

Figure 1-2 on the next page shows an example of how the MKP 2000 may be connected to a matrix switcher and other Extron products.

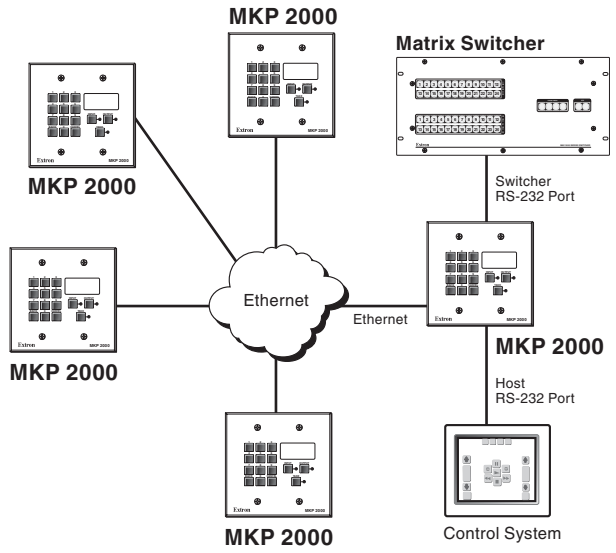


Figure 1-2 — MKP 2000 application diagram

Chapter Two

Installation

MKP Installation Overview

UL Requirements for Wall Box Installation

Installation Procedures

Rear Panel and Side Panel Connections

CAUTION *Installation and service must be performed by authorized personnel only. UL Listed electrical boxes are recommended. See "UL Requirements for Wall Box Installation" on the next page.*

The MKP 2000 remote control panel should be installed in a standard, 2-gang electrical wall box (figure 2-1). Figure 2-1 shows the MKP installed in a wall. It could also be installed in a desk, a podium, or any other convenient location.

The procedures provided here assume that the electrical wall boxes and the cables have been installed for the system. "Rear Panel and Side Panel Connections," starting on page 2-8, provides guidance for terminating the cables.

MKP Installation Overview

To install an MKP 2000 remote control panel, follow these steps:

1. Disconnect power from the matrix switcher and all MKPs in the system.
2. Prepare the site by cutting a hole in the wall or furniture, installing the electrical box or mounting bracket (mud ring), and preparing the cables. See "Preparing the site and installing the mounting bracket (mud ring) or wall box," later in this chapter, or the documentation provided with the wall box, for these procedures.
3. Connect the cable between the MKP and the matrix switcher. See "Rear Panel and Side Panel Connections," starting on page 2-8.
4. Connect power cords to the MKP and the matrix switcher.
5. Test the MKP's ability to communicate with the matrix switcher.
6. Disconnect power from all the devices.
7. Mount the MKP into the electrical box or to the mud ring. If using a wall box, see "Mounting the MKP to the mounting bracket (mud ring) or wall box," later in this chapter.
8. Restore power to the devices.

UL Requirements for Wall Box Installation

The following Underwriters Laboratories (UL) requirements pertain to the installation of the MKP 2000 into a wall or furniture (figure 2-1).

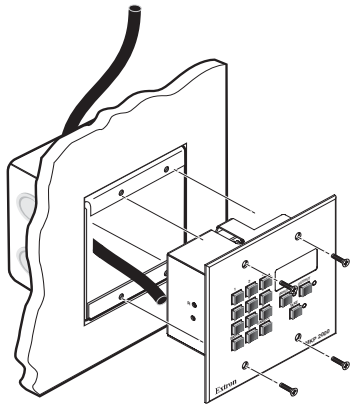


Figure 2-1 — MKP mounted in a wall box

1. These units are not to be connected to a centralized DC power source or used beyond their rated voltage range.
2. These units must be installed in UL listed junction boxes.
3. These units must be installed with conduit in accordance with the National Electrical Code.

Installation Procedures

The MKPs are mounted into a wall, furniture, or any other convenient location. Follow the instructions appropriate to the mounting option you have selected.

CAUTION *The control panel must be installed into a UL approved electrical wall box.*

NOTE *When installing MKP control panels, you must conform to all national and local electrical codes.*

Preparing the site and installing the mounting bracket (mud ring) or wall box

Choose a location that allows cable runs without interference. Allow enough depth for both the wall box and the cables. You may need to install the cables into the wall, furniture, or conduits before installing the control panel.

The installation must conform to national and local electrical codes and to the equipment's size requirements. A cutout template that shows the cutout requirement for the circuitry enclosure on the rear of the control panel is provided in appendix A.

CAUTION *The templates provided in this manual are not to scale. They are provided for reference only.*

Extron recommends installation using a UL listed wall box (available from Extron) for most mounting options, but you can use the included mounting brackets (mud rings) instead.

NOTE *Before using the mud rings, verify that the installation conforms to national and local electrical codes.*

CAUTION *Extron provides one mud ring with each MKP control panel. However, you may choose to use a wall box. Because the tolerances on electrical boxes are very loose, Extron recommends that you measure the actual box that you plan to use before making any precise cuts.*

NOTE *The electrical box must be at least* 2.5*" (7 cm) deep to accommodate the MKP's rear enclosure.*

Install the mud ring or wall box as follows:

1. **If you are using a mud ring**, use the template that came with the mud ring. Cut out the indicated center portion.

   NOTE *To meet the UL listing requirements, the MKP* ***must*** *be installed in a wall box.*

   If you are using a wall box, refer to the cutout template in appendix A that corresponds to the faceplate you are using; and cut out the center portion of it as indicated on the template.

2. Place the wall box or mud ring against the installation surface or measure the cut according to the template, and mark the guidelines for the opening on the wall or furniture.

3. Cut out the wall or furniture material from the marked area.

4. Check the size of the opening by inserting the wall box, mud ring, or control panel into it. The box or mud ring (if used) and/or control panel should fit easily into the opening. Enlarge or smooth the edges of the opening if needed.

5. **If you are using a wall box**, feed cables through the wall box punch-out holes, and secure them with cable clamps to provide strain relief.

6. Exposed cable shields (braids or foil) are potential sources of short circuits. Trim back and/or insulate shields with heat shrink (figure 2-2).

WARNING *To prevent short circuits, you can cut back the outer foil shield to the point where the cable exits the cable clamp. Both braided and foil shields should be connected to an equipment ground at the other end of the cable.*

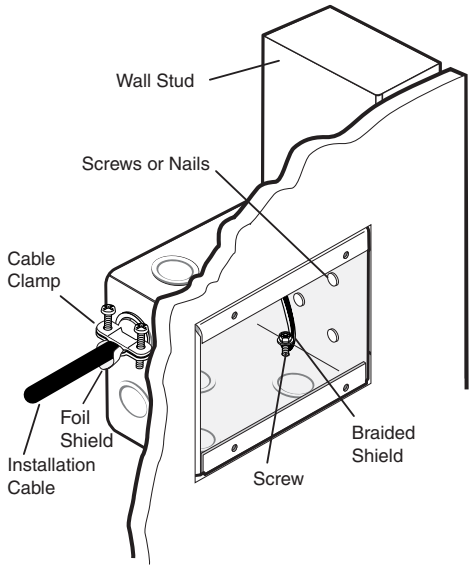


Figure 2-2 — Grounding outer braided and foil shields

7. **If you are using a mud ring**, follow the directions, if any, that came with the mud ring to attach the clips that fasten it to the wall or furniture (figure 2-3).

NOTE *To meet the UL listing requirements, the MKP device* ***must*** *be installed in a wall box.*

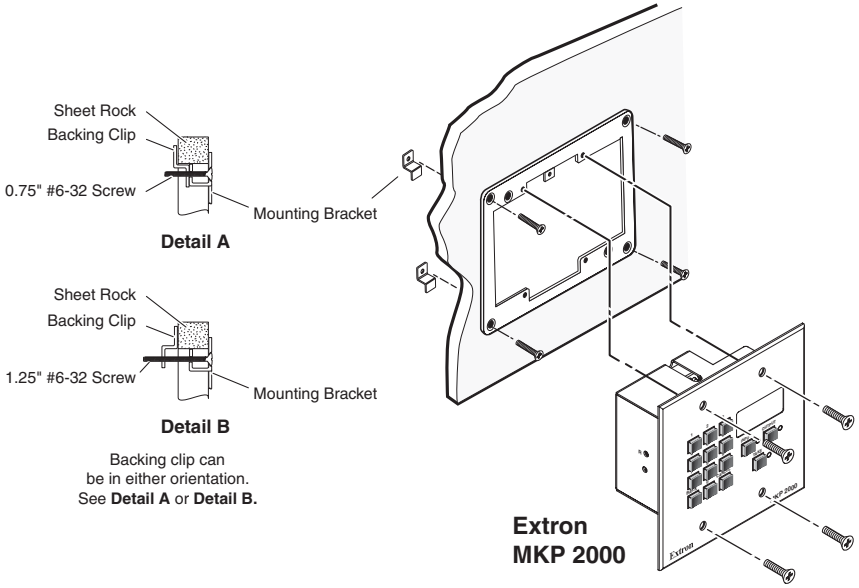


Figure 2-3 — Attaching a mud ring to a wall

If you are using a wall box, insert the wall box into the opening; and attach it to the wall stud or furniture with nails or screws, leaving the front edge flush with the outer wall or furniture surface (figure 2-4).

If attaching the wall box to wood, use four #8 or #10 screws or 10-penny nails. A minimum of ½ inch (1.3 cm) of screw threads must penetrate the wood.

If attaching the wall box to metal studs or furniture, use four #8 or #10 self-tapping sheet metal screws or machine bolts with matching nuts.

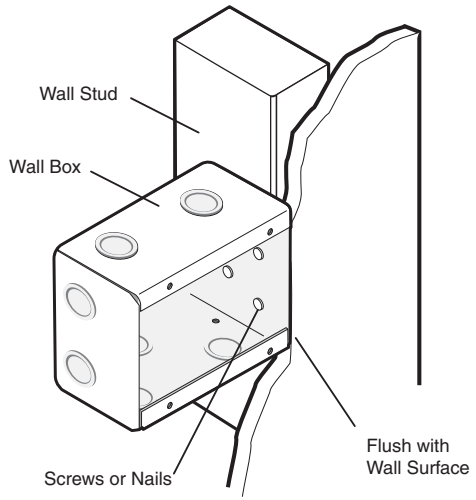


Figure 2-4 — Attaching a wall box to a wall stud

8. Connect the Ethernet and/or RS-232 cable (as appropriate) and the power cable, and test the MKP before fastening the control panel into the wall box. See "Rear Panel and Side Panel Connections" on page 2-8, for details.

NOTE *The rear panel connectors will be inaccessible after installation.*

Mounting the MKP to the mounting bracket (mud ring) or wall box

1. Remove power from the control panel by disconnecting the power supply.
2. Place the control panel through the opening in the wall or furniture and through the mud ring or into the wall box. Take care not to damage the cables, which fit behind the MKP, at the back of the wall box.
3. Mount the MKP's faceplate to the mud ring or wall box with machine screws (figure 2-5).

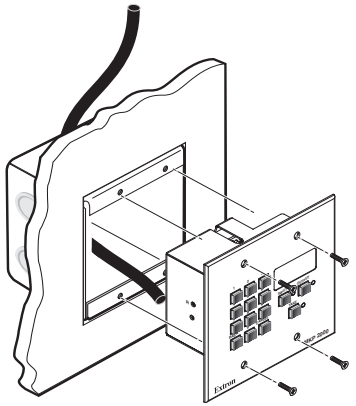


Figure 2-5 — Mounting the MKP to the wall box

4. Reconnect the power supply and restore power.

Rear Panel and Side Panel Connections

All connectors are on the rear or side of the MKP (figure 2-6). These connectors will be inaccessible once the MKP is installed.

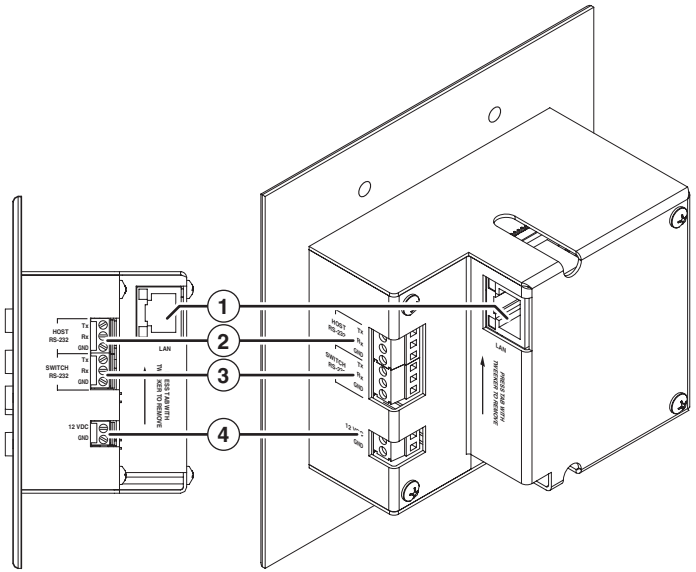
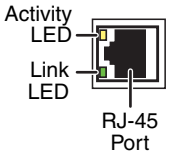


Figure 2-6 — MKP rear and side panels

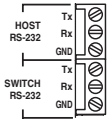
(1) **LAN (Ethernet) port —** If desired, connect a Category (CAT) 5e or higher (network) cable between this connector and either the matrix switcher to be controlled or to an Ethernet local area network (LAN).



See "TP cable termination," on page 2-12, to properly wire the RJ-45 connector for your application.

Ethernet connection indicators — The Link and Activity LEDs indicate the status of the Ethernet connection. The green Link LED indicates that the MKP is properly connected to an Ethernet LAN. This LED should light steadily. The yellow Activity LED indicates transmission of data packets on the RJ-45 connector. This LED should flicker as the MKP communicates.

(2) **Host RS-232 port —** If desired, connect a host computer or control system to this 3-pole, 3.5 mm, RS-232 connector (figure 2-7).



Pin	Function
TX	Transmit data
RX	Receive data
Gnd	Signal ground

Figure 2-7 — RS-232 connector

(3) **Switch RS-232 port —** If desired, connect a cable between this 3-pole, 3.5 mm, RS-232 connector and a matrix switcher (figure 2-7).

(4) **Power connector —** Plug the included external 12 VDC power supply into this 2-pole captive screw connector. See "Power supply wiring," on page 2-14, to wire the connector.

Control connections

The MKP has two RS-232 ports — a Host port (②) and a Switch port (③) — and an Ethernet (LAN) port (①). (See figure 2-6.)

An MKP control panel can be directly cross-connected to any Extron matrix switcher through the switcher's RS-232 port (see figure 2-12, later in this chapter, for pin assignments for the RS-232 cable). A control system or host computer can be connected via the MKP's host RS-232 port. Additional MKPs can be connected to the matrix switcher through the MKP that is RS-232 connected (the primary MKP). The additional (secondary) MKPs are connected to the primary MKP via the primary MKP's Ethernet port. Figure 2-8 shows an example of this type of configuration.

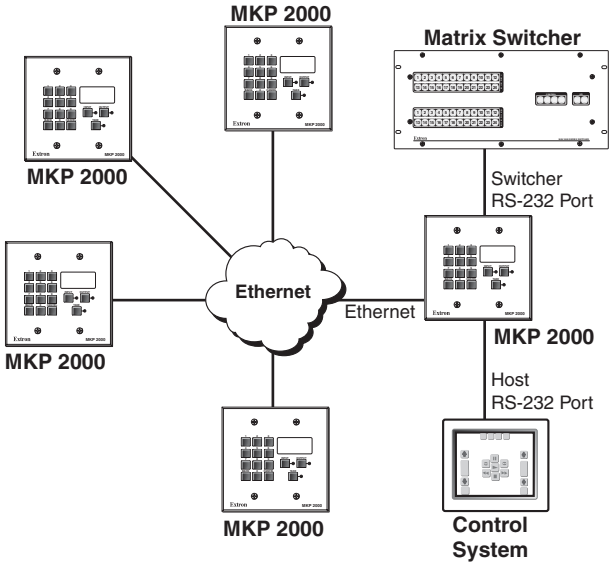


Figure 2-8 — MKP connection using the RS-232 port

An MKP control panel can be directly connected to any Ethernet-enabled matrix switcher via the switcher's Ethernet port (figure 2-9) using a TP (network) cable that is wired as a crossover cable (see "TP cable termination," later in this chapter, to properly wire the cable).

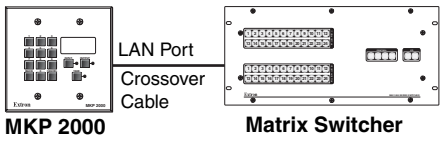


Figure 2-9 — Direct MKP connection via the LAN port

Any number of control panels can be connected, as part of a network, to any Ethernet-enabled matrix switcher via the switcher's Ethernet port (figure 2-10). All TP cables in this example are wired as patch (straight-through) cables.

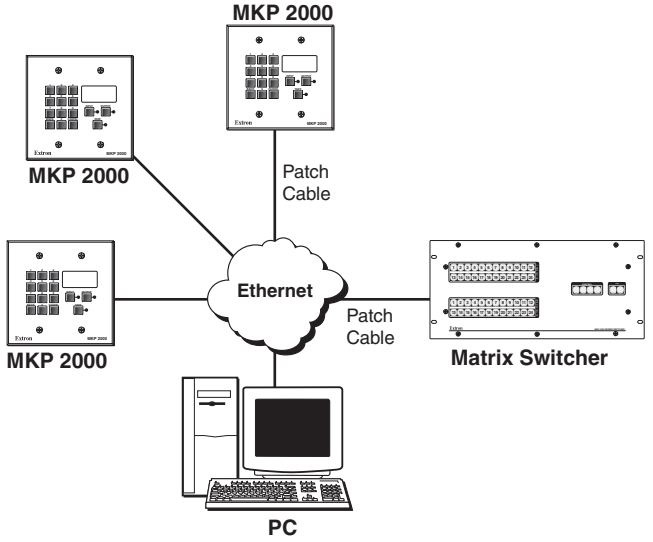


Figure 2-10 — Network MKP connection using the LAN port

RS-232 cable termination

Each MKP control panel has two RS-232 ports that are connected using 3.5 mm, 3-pole direct insertion connectors. Wire the connectors as follows:

NOTE *The total cable length between an MKP control panel and a matrix switcher should not exceed 100 feet (30 m).*

1. Choose a cable such as Extron's Comm-Link cable. The wire specifications for Comm-Link cable are on page A-6. Colors may vary from this example.
2. Trim approximately 1.5" (3.8 cm) of the cable jacket to expose the four insulated wires and a bare drain wire (silver-colored).
3. Cut off the foil shield and discard it.
4. Strip ¼" (0.6 cm) of insulation from any three of the four wires (not including the drain [unshielded] wire).
5. Twist the strands of each wire, insert the strands into the direct insertion connector, and tighten the captive screws.

TP cable termination

It is vital that you use the correct Ethernet cables, and that they be properly terminated with the correct pinout. Ethernet links use Category (CAT) 5e or CAT 6, unshielded twisted pair (UTP) or shielded twisted pair (STP) cables, terminated with RJ-45 connectors. Ethernet cables are limited to a length of 328' (100 m).

CAUTION *Do not use standard telephone cables. Telephone cables do not support Ethernet or Fast Ethernet.*

Do not stretch or bend cables. This can cause transmission errors.

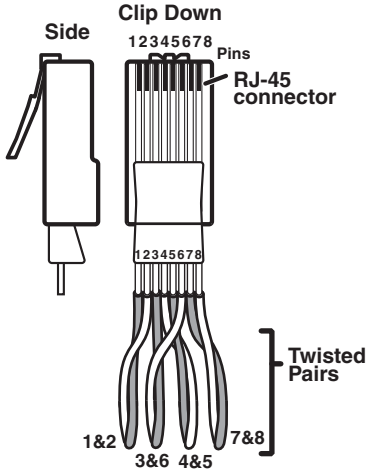
The cable that you use depends on your network speed. The MKP supports both 10 Mbps (10Base-T — Ethernet) and 100 Mbps (100Base-T — Fast Ethernet), half-duplex and full-duplex, Ethernet connections.

- 10Base-T Ethernet requires CAT 3 UTP or STP cable as a minimum.
- 100Base-T Fast Ethernet requires CAT 5e UTP or STP cable as a minimum.

The Ethernet cable can be terminated as a straight-through cable or a crossover cable, and must be properly terminated for your application.

- **Patch (straight-through) cable —** Network connection between the MKP and an Ethernet LAN (figure 2-10)
- **Crossover cable —** Direct connection between the MKP and a host computer or an Ethernet-enabled matrix switcher (figure 2-9)

For pin assignments, see figure 2-11, at right.



Patch (straight) cable

Side 1		Side 2	
Pin	Wire color	Pin	Wire color
1	White-orange	1	White-orange
2	Orange	2	Orange
3	White-green	3	White-green
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Green
7	White-brown	7	White-brown
8	Brown	8	Brown

Crossover cable

Side 1		Side 2	
Pin	Wire color	Pin	Wire color
1	White-orange	1	White-green
2	Orange	2	Green
3	White-green	3	White-orange
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Orange
7	White-brown	7	White-brown
8	Brown	8	Brown

Figure 2-11 — RJ-45 connector and pinout tables

Pin	Switcher RS-232	MKP RS-232
1	–	–
2	**Tx**	**Rx**
3	**Rx**	**Tx**
4	–	–
5	**Gnd**	**Gnd**
6	–	–
7	–	–
8	–	–
9	–	–

Figure 2-12 — RS-232 cross-connection table

Power supply wiring

Figure 2-13 shows how to wire the power connector.

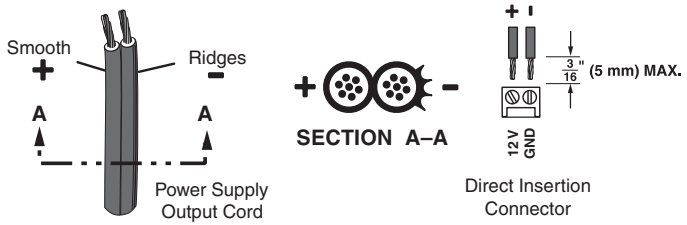


Figure 2-13 — Power connector wiring

CAUTION *Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the MKP. Identify the power cord negative lead by the ridges on the side of the cord (figure 2-13).*

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

NOTE *The length of the exposed (stripped) copper wires is important. **The ideal length is 3/16" (5 mm)**. Longer bare wires can short together. Shorter wires are not as secure in the direct insertion connectors and could be pulled out.*

NOTE *Do not tin the power supply leads before installing them in the direct insertion connector. Tinned wires are not as secure in the connectors and could be pulled out.*

WARNING *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.*

Alternatively, you can use the optional Extron P/S 123 Universal 12 VDC Power Supply, part #**60-814-01**, which can power up to ten Extron 12 VDC devices using only one AC power connector.

Chapter Three

Local Operation

Front Panel Controls and Indications

Front Panel Operations

Rear Panel Resets

Front Panel Controls and Indications

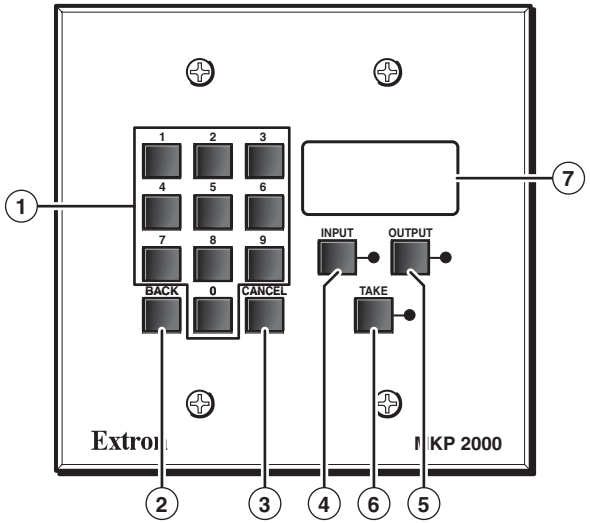


Figure 3-1 — MKP 2000 controls and indicators

(1) **0, 1 through 9 buttons —** Allow you to enter an input or output when you create a tie.

(2) **Back button —** Deletes the least-significant digit (first digit on the right) of an entered input or output number.

(3) **Cancel button —** Clears the LED display to 000, erasing any number that you have entered or any error message.

(4) **Input button —** Allows you to specify that the next number you enter with the numeric keys ((1)) is an input.

(5) **Output button —** Allows you to specify that the next number you enter with the numeric keys ((1)) is an output.

(6) **Take button —** Confirms the potential tie that you have created with the input and output selection. This button is the equivalent of the Enter button on the matrix switcher's front panel.

(7) **LED display —** Shows the input or output number that was most-recently entered using the MKP's numeric keys ((1)). In certain modes, it can also show the various IP addresses programmed into the MKP.

NOTE *The LED display shows the most recent input or output number entered on the numeric keys only. Ties created using other devices (other MKPs, a PC or control system, or the matrix switcher's front panel) are not shown in the LED display.*

Front Panel Operations

Creating a tie

To tie an input to an output,

1. Press the Input button to specify that the next number entered is an input number.
   - The Input LED lights.
   - The LED display shows the last input selected from this MKP.
   - The last selected output is locked (unable to be changed; assigned as the output to which the entered input is tied unless a different output is assigned [see steps **3** and **4**]).
2. Use the numeric keys to select the desired input.
   - The LED display shows the input that you enter.
   - The Take LED blinks.

NOTE *If you press the Take button now, the selected input is tied to the locked output.*

3. Press the Output button to specify that the next number entered is an output number.
   - The Output LED lights.
   - The LED display shows the last output selected from this MKP.
   - The last selected input is locked (unable to be changed; assigned as the output to which the entered input is tied unless a different input is assigned [see steps **1** and **2**]).
4. Use the numeric keys to select the desired output.
   - The LED display shows the output that you enter.
   - The Take LED blinks.
5. Press the Take button to confirm the change.
   - The Take LED goes out.
   - The LED display shows the last output that was tied from this MKP.

NOTE *When a selected input or output is outside the available range for this MKP or the connected matrix switcher, the LED display shows n-A (not available).*

Deselecting a tie

To deselect (break) a tie,

1. Press Input.
2. On the keypad, press 0 for the input.
3. Press Output.
4. On the keypad, press the number of the output that you want to untie.
5. Press Take.

Viewing the last input or output tied from the MKP

Press either the Input button or the Output button.

- The Input or Output LED lights.
- The LED display shows the last tied input or output (depending on which LED, Input or Output, is lit).

NOTE *The LED display shows the most recent input or output number entered on the numeric keys only. Ties created using other devices (other MKPs, a PC or control system, or the matrix switcher's front panel) are not shown in the LED display.*

Viewing and configuring the IP and MKP setup parameters

To configure the MKP to operate in your network, you may need to change one or more of the following IP addresses and the host control port setting:

- The MKP's IP address (default = 192.168.254.253)
- The MKP's subnet address (default = 255.255.0.0)
- The MKP's gateway address (default = 0.0.0.0)
- The target matrix switcher's IP address (default = 0.0.0.0)
- Host control port setting (pass-through or no pass-through) (default = no pass-through)
- MKP's connection setting
  - **Primary** — Controls the switcher directly.
  - **Secondary** — Controls the switcher through another MKP and its Switch RS-232 port.

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields (octets) separated by dots (periods). Each octet can be numbered from 000 through 255. Leading zeroes, up to three digits total per octet, are optional. Values of 256 and above are invalid.

If any of the default addresses conflict with other equipment at your installation, you can change them to any valid value.

CAUTION *Editing the Extron IP address and other parameters while connected via the LAN port can immediately disconnect you from the MKP. Extron recommends editing this field using the front panel or the RS-232 link, and protecting the Ethernet access to these parameters by assigning an administrator's password to only qualified and knowledgeable personnel.*

Edit these addresses and set the host control as follows:

1. Simultaneously press and **hold** the Input, Output, and Take buttons until the LED display changes (approximately 2 seconds), then **release** the buttons (figure 3-2).

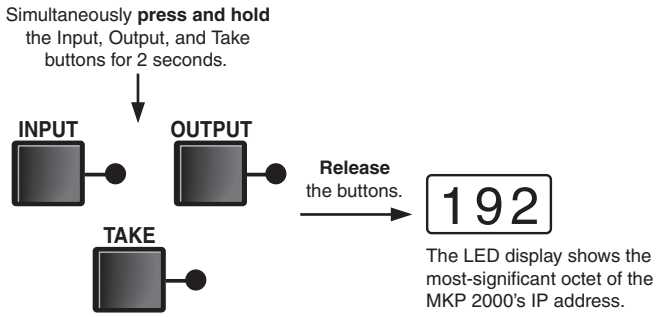

Simultaneously press and hold the Input, Output, and Take buttons for 2 seconds.
INPUT
OUTPUT
TAKE
Release the buttons.
192
The LED display shows the most-significant octet of the MKP 2000's IP address.

Figure 3-2 — Selecting Setup mode

   - Press the Input button to change the value shown in the LED display, cycling through the various IP addresses and the host control settings (figure 3-3).

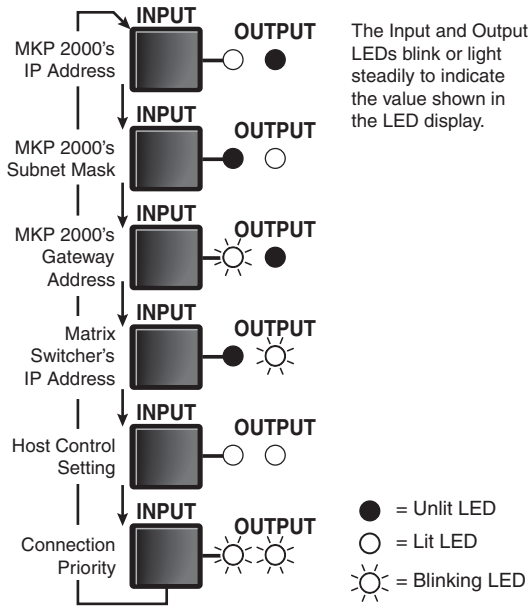

INPUT
OUTPUT
MKP 2000's IP Address
MKP 2000's Subnet Mask
MKP 2000's Gateway Address
Matrix Switcher's IP Address
Host Control Setting
Connection Priority
The Input and Output LEDs blink or light steadily to indicate the value shown in the LED display.
= Unlit LED
= Lit LED
= Blinking LED

Figure 3-3 — Selecting different addresses

- Press the Output button to change the octet of the selected IP address that is shown in the LED display, or to switch between host control and primary/secondary settings (figure 3-4).

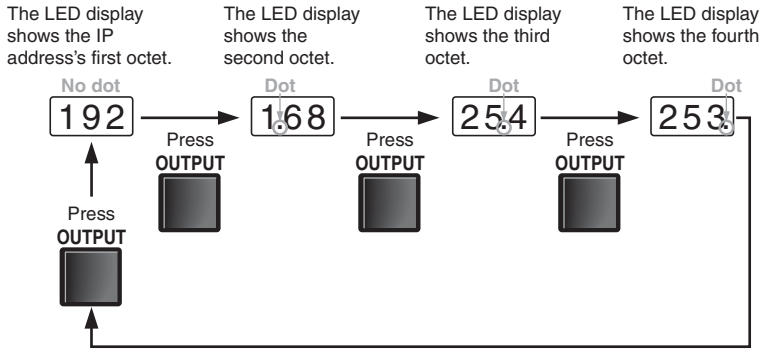


Figure 3-4 — Selecting octet fields

NOTE *The position or absence of a dot (period) in the display indicates the octet that is displayed. In the example in figure 3-4, the IP address is the MKP's default address, 192.168.254.253. Each octet of an IP address can be edited when it is displayed.*

2. Use the Input and Output buttons to select and display the desired address and octet.
3. Press the Cancel button to clear the octet to 000.
4. Use the 0 through 9 buttons to enter the desired octet value.
5. Repeat steps **2** through **4** to select and change other addresses and/or octets.
6. Use the Input button to select the host control setting display (figure 3-5).

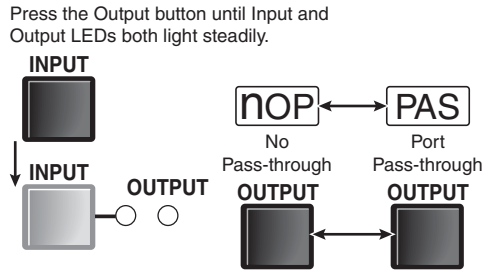


Figure 3-5 — Selecting the host control setting

7. If necessary, use the Output button to toggle the host control setting between pass-through and no pass-through.
8. Use the Input button to select the connection priority display (figure 3-6).

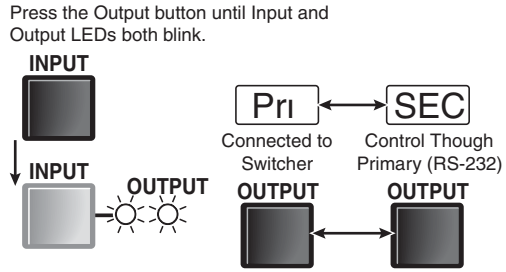


Figure 3-6 — Selecting the connection priority setting

9. If necessary, use the Output button to toggle the connection priority setting between primary and secondary.

10. When all addresses, octets, the host control setting, and the priority settings are correct, press the Take button.

Host control port setting and pass-through communications

When the MKP is

- Connected to a computer or control system via its Host RS-232 port **and**
- In pass-through mode,

the MKP redirects valid matrix switcher SIS commands that it receives on its Host RS-232 port to its Switch RS-232 port.

When the MKP is

- Connected to a computer or control system via its Host RS-232 port **and**
- In no pass-through mode,

the MKP acts on all valid MKP commands received. It does not pass the command to its Switch RS-232 port.

When the MKP is

- Selected as primary,

  the MKP directly controls the matrix switcher via its Switch RS-232 port or LAN port.

- Selected as secondary,

  the MKP controls the matrix switcher through connection to the primary MKP's IP address.

Control panel security lockout (executive mode)

The MKP 2000 provides the following three levels of front panel security lockout (executive modes):

Panel Locked mode — All front panel controls are locked. Selections and setup cannot be performed from the front panel.

User mode — Front panel operation is limited to input and output selection. The panel configuration, IP, and switcher addressing functions are locked.

Administrator mode (default) — All front panel controls are available.

To step through the selections for the three executive modes,

1. Press and **hold** the 1, 3, Back, and Cancel buttons until the LED window displays one of the following messages, indicating the executive mode that has been set (approximately 3 seconds).
   - **Administrator mode** — The LED display flashes **LOC**, then **Ad**; then displays "**. . .** ".
   - **User mode** — The LED display flashes **LOC**, then **Us**; then displays "**. . .**".
   - **Panel Locked mode** — The LED display shows **LOC**.
2. Repeat step **1** until the LED indicates the mode you want.

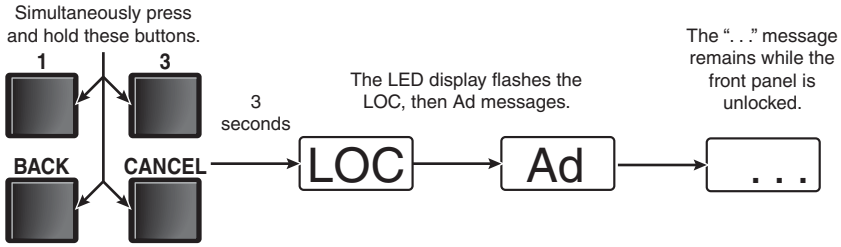


Figure 3-7 — Control panel lockout: switching to Administrator mode

Rear Panel Resets

Performing soft resets

The remote control panel has three soft resets available that restore various tiers of MKP settings to their defaults.

- **Events (mode 3) reset —** Restarts the communications and control events.
- **IP system (mode 4) reset —** Resets most IP protocols to their default settings.

NOTE *IP system reset clears the Internet protocol (IP) settings, but does not reset the target address, the host control setting, the priority setting, or any user-loaded files.*

- **Absolute (mode 5) reset —** Performs all of the system reset functions **and** clears the MKP's IP address to 192.168.254.253 and subnet mask to 255.255.0.0. This function is identical to the Esc ZQQQ ← SIS command. See chapter 4, "SIS™ Operation."

To perform a soft reset of the MKP 2000,

1. Press and **hold** the Reset (R) button until the Reset LED blinks off once (for events reset), twice (for IP system reset), or three times (for absolute reset) (figure 3-8).

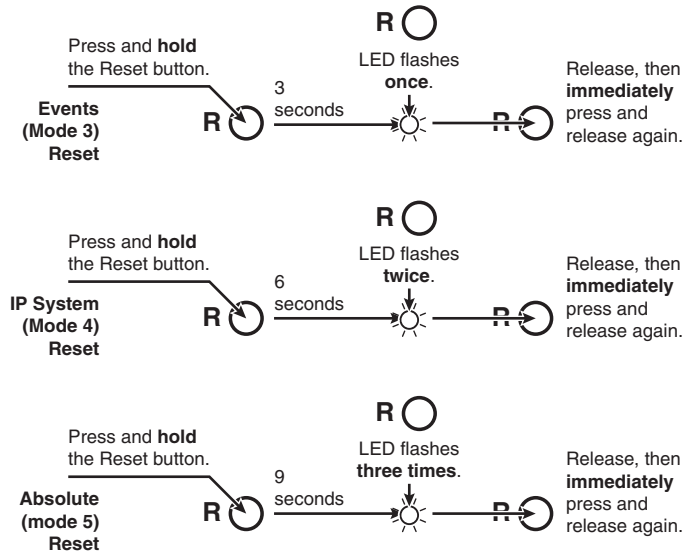


Figure 3-8 — Performing soft resets

2. Release the Reset button and then immediately press and release the Reset button again. Nothing happens if the second momentary press does not occur within 1 second.

Performing a hard reset

The hard reset function restores the MKP to its original factory default firmware configuration. A hard reset erases all user-installed software or firmware.

Follow these steps to perform a hard reset:

CAUTION *Ensure that you have backed up any locally-created HTML, JavaScript, or other files that have been uploaded to the MKP's user file space **before** you perform the hard reset. A hard reset **will** **erase** all locally-created files from the MKP.*

NOTE *The hard reset does **not** change the IP address, the subnet mask, the gateway address, or the matrix switcher IP address.*

1. Turn off power to the switcher.
2. Press and **hold** the Reset button on the rear panel **while** you apply AC power to the MKP (figure 3-9).

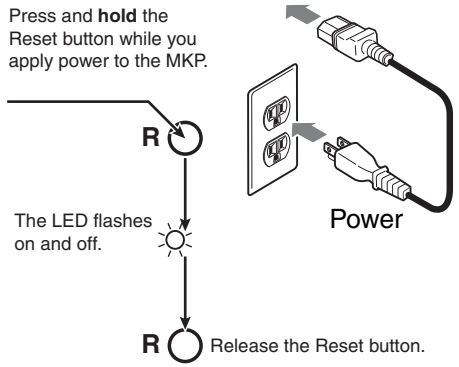

Press and hold the Reset button while you apply power to the MKP.
R
Power
The LED flashes on and off.
R
Release the Reset button.

Figure 3-9 — Performing a hard reset

Chapter Four

SIS™ Operation

RS-232 Links

Ethernet Link

Host-to-MKP Instructions

MKP-Initiated (Unsolicited) Messages

MKP Error Responses

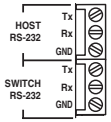
Using the Command/Response Table

RS-232 Links

The MKP's rear panel 3-pole, 3.5 mm, Host RS-232 connector (figure 4-1) can be connected to the RS-232 serial port output of a host device such as a computer running the HyperTerminal utility, an RS-232 capable PDA, or a control system. This connection makes software control of the control panel possible. The rear panel Switch connector can be connected to the Remote or RS-232 port of a matrix switcher.

The default protocol for both ports is as follows:

- 9600 baud*
- 8-bit, 1 stop bit
- No parity
- No flow control



Pin	Function
TX	Transmit data
RX	Receive data
Gnd	Signal ground

Figure 4-1 — RS-232 connector pin assignments

NOTE * *The default baud rate is 9600, but this can be changed, using the MKP's web pages, to 19200, 38400, or 115200 baud to match the switcher's baud rate. See "Port (RS-232) Settings" in chapter 5, "HTML Operation," to change the baud rate.*

Routing matrix switcher commands

When the MKP is connected to the matrix switcher via its Switch RS-232 port, the MKP can redirect SIS matrix switcher commands received on the Host RS-232 port to the matrix switcher.

If the MKP receives a valid matrix switcher SIS command on its Host RS-232 port, it redirects the command to its Switch RS-232 port only if the MKP is set to pass-through mode. See the pass-through port redirect command set on page 4-9 to set the pass-through mode.

Ethernet Link

The rear panel LAN connector on the MKP can be connected directly to a host computer (for setup) or a matrix switcher (for switcher control), or to an Ethernet LAN or WAN (to which a host computer, other MKPs, and a matrix switcher can also be connected).

- Connection **directly** to a host computer requires a **crossover cable**.
- Connection via an Ethernet LAN requires a **patch (straight-through) cable**.

NOTE *See "TP cable termination" in chapter 2, "Installation," to create crossover and patch cables.*

Default IP address

To access the MKP via the Ethernet port, you need the Extron IP address. If the address has been changed to an address comprised of words and characters, you can determine the actual numeric IP address using the ping (ICMP) utility. If the address has not been changed, the factory-specified default is 192.168.254.253.

Host-to-MKP Instructions

The MKP accepts SIS (Simple Instruction Set) commands through the Host RS-232 and Ethernet ports. SIS commands consist of one or more characters per command field. They do not require any special characters to begin or end the command character sequence. Each MKP response to an SIS command ends with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

MKP-Initiated (Unsolicited) Messages

When a local event such as a front panel operation occurs, the MKP responds by sending a message to the host. The MKP-initiated messages are listed below (underlined).

(c) Copyright 2006, Extron Electronics, MKP 2000, Vx.xx, 60-682-00 ↵ **(for RS-232 connection)**

(c) Copyright 2006, Extron Electronics, MKP 2000, Vx.xx, 60-682-00 ←
Www, DD Mmm YYYY hh:mm:ss ↵ **(for IP connection)**

The MKP initiates the copyright message when it is first powered on or when connection via Internet protocol (IP) is established. Vx.xx is the firmware version number; Www indicates the day of the week (IP).

↵ Password:

The MKP initiates the password message immediately after the copyright message when the controlling system is connected using TCP/IP or Telnet, and the MKP is password protected. This message means that the MKP requires an administrator or user level password in order for it to perform the commands entered via this link. The MKP repeats the password message response for every entry other than a valid password until a valid password is entered.

↵ Login Administrator ↵

↵ Login User ↵

The MKP initiates the login message when a correct administrator or user password has been entered. If the user and administrator passwords are the same, the MKP defaults to administrator privileges.

MKP Error Responses

When the MKP receives an SIS command and determines that it is valid, it performs the command and sends a response to the host device. If the MKP is unable to perform the command because the command is invalid or contains invalid parameters, the MKP returns an error response to the host. The error response codes are:

E01 — Invalid input channel number (too large)
E10 — Invalid command
E12 — Invalid output number (too large)
E13 — Invalid value (out of range)
E14 — Illegal command for this configuration
E24 — Privilege violation (Ethernet, Extron software only)
E99 — Invalid or no response from target switcher

Using the Command/Response Table

The command/response table begins on page 4-9. Lowercase letters are acceptable in the command field except where indicated for the gain and attenuation commands. The table below shows the hexadecimal equivalent of each ASCII character used in the command/response table.

ASCII to HEX Conversion Table																							
	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27	(	28	)	29	*	2A	+	2B
,	2C	-	2D	.	2E	/	2F	Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F	@	4Ø	A	41	B	42	C	43
D	44	E	45	F	46	G	47	H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	5Ø	Q	51	R	52	S	53	T	54	U	55	V	56	W	57	X	58	Y	59	Z	5A	[	5B
\	5C	]	5D	^	5E	_	5F	`	6Ø	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F	p	7Ø	q	71	r	72	s	73
t	74	u	75	v	76	w	77	x	78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL	7F
Esc	1B	CR	ØD	LF	ØA																		

The MKP always redirects a subset of valid matrix switcher-specific SIS commands on its Ethernet port and, if configured in pass-through mode, on its Switch RS-232 port.

NOTE *It is not the purpose of this manual to define in detail the passed-through matrix switcher-specific SIS commands. Refer to the applicable matrix switcher's manual.*

Symbols are used throughout the tables to represent variables in the command/response fields. Command and response examples are shown throughout the MKP SIS commands table.

Symbol definitions

↵ = CR/LF (carriage return/line feed) (0x0D 0A)

• = space

X1 = On/off status 0 = off/disable 1 = on/enable

X2 = RS-232 port number 1 = host 2 = switcher

X3 = *n* = – 1 = redirect serial port data from the specified port to allow for a transparent pass through mode. The response is returned with leading zeroes. *n* = the maximum number of serial ports that the IP link supports. X5 is verified at this port.

X4 = Time (in 10 ms increments) to wait for receive data before releasing the port to another source (min = 1 [10 ms], maximum = 32767 [32.767 seconds], default = 10 [100 ms]).

X5 = Numerical value (*nnnn*) to set L (length of message to receive) or assign as a **D** (delimiter).
L = number of byte count (min = 0, max = 32767, default = 0).
D = decimal number for ASCII character (min = 0, maximum = 00255, default = 00000L).

NOTE *The numeric value directly precedes the identifier; for example: X5 = "3L" to specify a 3-byte length or X5 = "10D" to specify an ASCII delimiter of 0A. The identifier, "**L**" or "**D**" is case sensitive and must be uppercase.*

X6 = Firmware version Bootstrap version *(x.xx)*

X7 = Verbose firmware version-description-upload date/time. See page 4-11.

X8 = Voltage 1 (3.3 V), Voltage 2 (12.0 V), Temperature (degrees Fahrenheit) (*xxx.xx*)

X9 = Verbose/response mode 0 = no password assigned
1 = verbose mode
2 = tagged responses for queries
3 = 1 and 2 (verbose and tagged)

NOTE *The default X9 value is 0 for Telnet and 0 for RS-232.*

If tagged responses are enabled, all read commands return the constant string plus the data, the same as setting the value. For example, the MKP responds Ipn•X16↵ *to the* Esc•CN← *command.*

X10 = Security level 0 = clear/none
11 = user password assigned
12 = administrator password assigned

X11 = Baud rate 300, 600, 1200, 1800, 2400, 3600, 4800, 9600 (default), 14400, 19200, 28800, 38400, 57600, or 115200

X12 = Parity (1st character only) **O**dd, **E**ven, **N**one (default), **M**ark, **S**pace

X13 = # of data bits 7 or 8 (default)

X14 = # of stop bits 1 (default) or 2

X15 = Name 24 characters maximum. Upper and lower case alphanumeric characters and " " + – : = / and spaces are valid.

NOTE *Using any of the following characters results in an invalid name:* + ~ , @ = ' [ ] { } < > ' " ; : | \ *and* ?.

X16 = Default name Factory default name (combination of the model name plus last three pairs of MAC address)

X17 = Time and date (set) MM/DD/YY-HH:MM:SS

MM = month: 01 (Jan.) — 12 (Dec.)
DD = day: 01 through 31
YY = year: 00 through 99
HH = hour: 00 through 24
MM = minutes: 00 through 59
SS = seconds: 00 through 59

X18 = Time and date (read) Day,•DD•Mmm•YYYY•HH:MM:SS
where:
Day = weekday: Mon through Sun
DD = day: 01 through 31
Mmm = month: Jan through Dec
YYYY = year: 2000 through 2099
HH = hour: 00 through 24
MM = minutes: 00 through 59
SS = seconds: 00 through 59

X19 = GMT offset –12.0 through +14.0. Hours and minutes removed from GMT

X20 = Daylight Savings Time 0 = Daylight Savings Time off/ignore
1 = Daylight Savings Time on (northern hemisphere)
2 = Daylight Savings Time on (Europe)
3 = Daylight Savings Time on (Brazil)

X21 = IP address ###.###.###.###

X22 = Hardware (MAC) address ##-##-##-##-##-##

X23 = Connection priority 0 = Primary 1 = Secondary

X24 = Password 12 digits, alphanumeric

NOTE *Using any of the following characters results in an invalid preset name:: {space}* + ~ @ = ' ' [ ] { } < > " " ; : | \ *and* ?.

X25 = Web page priority	0 = Internal (default on power up) 1 = User
X28 = Executive mode	0 = Administrator mode (panel unlocked) 1 = User mode 2 = Panel locked

Command/response table for MKP SIS commands

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Front panel security lockout (executive mode)			
Panel Locked mode	2x	Exe2 ↵	Lock front panel.
User mode	1x	Exe1 ↵	Enable only input and output selection from the front panel.
Administrator mode	0x	Exe0 ↵	Unlock front panel.
View front panel lock status	x	X28 ↵	Show front panel lock status. For X28: 0 = Administrator mode (panel unlocked). 1 = User mode. 2 = Panel locked.
Pass-through (RS-232 port redirect)			
Configure redirect mode	Esc X2 * X3 * X4 * X5 CD↓	Cpn X2 • Ccd X3 , X4 , X5 ↵	Turn redirect mode on and specify port parameters.
Example:	Esc 1*2*50*10D*CD↓	Cpn01•Ccd00002,00050,00000L ↵	Redirect port 1 to port 2. Wait 500 ms for response.
NOTE *The "L" or "D" delimiter in value X5 is case sensitive and must be uppercase.*			
Disable redirect	Esc X2 * 0CD	Cpn X2 Ccd00000,00000,00000L ↵	
View redirect	Esc X2 CD	X3 , X4 , X5 ↵	View redirect mode on/off status.

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Information requests			
Information request	I	MKP • 2000 ↵	Report model name.
Request for part number	N	60-682-00 ↵	See appendix A for part numbers.
Query firmware version	Q	X6 ↵	Show firmware version X6 in format *x.xx*.
Query verbose firmware version	0Q	X7 ↵	Provide a detailed status of the Ethernet protocol firmware, the MKP controller firmware, and any firmware upgrade. The firmware that is running is marked by asterisk (*). A caret (^) indicates that the firmware has a bad checksum or an invalid load. **?.??** indicates that firmware is not loaded.
Response description:	Ethernet protocol firmware version - controller firmware version - updated firmware version ↵		
Query status	S	X8 ↵	Show voltage and temperature readings.
Resets			
NOTE *The Names Reset command (Esc ZXXX←) has no affect on an MKP 2000, but it can be applied from a primary MKP 2000 to one or more connected MKP 3000s.*			
Names reset	Esc ZXXX←	Zpx ↵	Erase all presets, preset names, input names, and output names.
Absolute reset	Esc ZQQQ←	Zpq ↵	Perform a Names reset plus restoring all IP settings.

Command/response table for MKP SIS commands (continued)

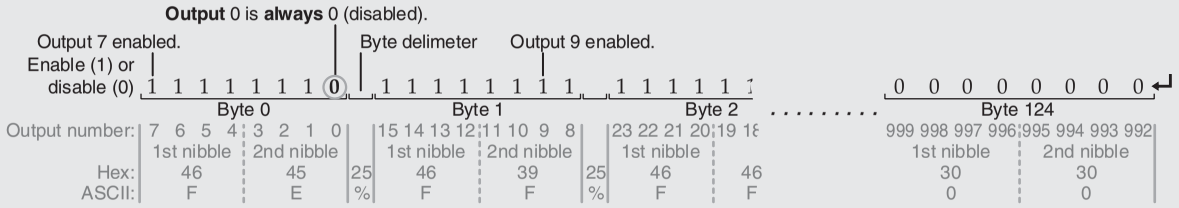
Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Verbose mode			
Set verbose mode on	Esc X9 CV←	Vrb1 ↵	The MKP reports all status changes to the device that sent the command.
Read verbose mode	Esc CV←	X9 ↵	
Read connection's security level	Esc CK←	X10 ↵	Password level protection assigned.
RS-232 port configuration			
Configure serial port	Esc X2 * X11 , X12 , X13 , X14 CP←	Cpn X2 • Ccp X11 * X12 * X13 * X14 ↵	
Example:	Esc 1 * 9600,n,8,1CP←	Cpn01 • Ccp9600,N,8,1 ↵	9600 baud, no parity, 8 data bits, 1 stop bit.
View port configuration	Esc X2 Cp	X11 * X12 * X13 * X14 ↵	
Disable/enable inputs and outputs			
Enable all inputs	Esc +7BM←	Upl↵	Enable all inputs.
Disable all inputs	Esc +6BM←	Upl↵	Disable all inputs.
Enable all outputs	Esc +9BM←	Upl↵	Enable all outputs.
Disable all outputs	Esc +8BM←	Upl↵	Disable all outputs.
NOTE *Input and output enables **can** be read using SIS commands, but the returned data is hard to interpret. Reading the enabled outputs is far simpler using the HTML pages. See "System Settings page" in chapter 5, "HTML Operation."*			

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Disable/enable inputs and outputs, continued			
Read output enables	Esc +5BM↵	*data*↵	Displays a list that identifies which outputs are enabled or disabled. The response data is shown as a series of 125 bytes that correspond to groups of outputs. Each bit in a byte shows if the associated output is enabled (set to 1) or disabled (reset to 0). Each byte is separated by a delimiter (%).
Example ***(for 32-output switcher)***:	Esc +5BM↵	%FE%FF%FF%FF%01%00%00%00%00%...%00%00%00%↵	In this example, all **valid** outputs are enabled (with the exception of output 0, which **cannot** be enabled. See the ***Data description***, below, for a detailed explanation.

NOTE *Outputs 33 through 999 are **invalid** selections for a 32-output matrix switcher.*

Data description: %{byte 0 (outputs 0 – 7}%{byte 1 (8 – 15)}%{byte 2 (16 – 23}% ... {byte 124 (992 – 999}.


Output 0 is always 0 (disabled).
Output 7 enabled.
Enable (1) or disable (0)
Byte delimeter
Output 9 enabled.
1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0 0 0 0 0 0 0 0↵
Byte 0
Byte 1
Byte 2
Byte 124
Output number: 7 6 5 4 3 2 1 0 15 14 13 12 11 10 9 8 23 22 21 20 19 18
999 998 997 996 995 994 993 992
1st nibble
2nd nibble
Hex: 46 45 25 46 39 25 46 46 30 30
ASCII: F E % F F % F F 0 0

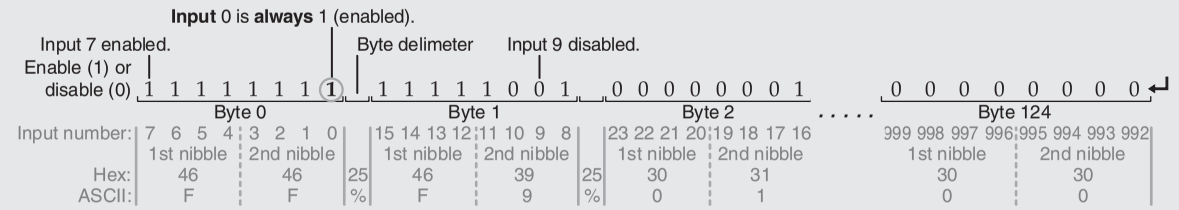
NOTE *Each byte is returned most-significant bit first (such as output 7 in byte 0), least-significant bit last (such as output 0 in byte 0). Bytes are returned in sequential order (byte 0, byte 1, byte 2,...byte 124).*

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
Disable/enable inputs and outputs, continued			
Read input enables	Esc +1BM↵	*data*↵	Displays a list that identifies which inputs are enabled (available for selection) or disabled (unavailable for selection). The response data is presented as a series of 125 bytes that correspond to groups of inputs. Each bit in a byte shows if the associated input is enabled (set to 1) or disabled (reset to 0). Each byte is separated by %.
Example ***(for 16-input switcher)***:	Esc +1BM↵	%FF%F9%01%00%00%00%00%00%00%...%00%00%00%↵	In this example, inputs 9 and 10 are disabled. All other **valid** inputs are enabled (including 0, which **cannot** be disabled). See the ***Data description*** for the read outputs command, below, for a detailed explanation.

NOTE *Inputs 17 through 999 are **invalid** selections for a 16-input matrix switcher.*

Data description: %{byte 0 (inputs 0 – 7}%{byte 1 (8 – 15)}%{byte 2 (16 – 23}% ... {byte 124 (992 – 999}.



NOTE *Each byte is returned most-significant bit first (such as input 7 in byte 0), least-significant bit last (such as input 0 in byte 0). Bytes are returned in sequential order (byte 0, byte 1, byte 2,...byte 124).*

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
IP setup			
Set MKP name	Esc X15 CN↵	Ipn X15 ↵	Assign a name to the MKP.
Set MKP name to factory default	Esc • CN↵	Ipn• X16 ↵	Reset the MKP's name to the factory default.
Read MKP name	Esc CN↵	X15 ↵	Read assigned MKP name (X15 may be X16).
Set time/date	Esc X17 CT↵	Ipt X18 ↵	Set the time and date.
Read time/date	Esc CT↵	X18 ↵	Read the time and date.
Set GMT offset	Esc X19 CZ↵	Ipz X19 ↵	The divider between hours and minutes is a period.
Read GMT offset	Esc CZ↵	X19 ↵	
Set Daylight Savings Time	Esc , X20 CX↵	Ipx X20 ↵	Set the switcher to display the local time as Daylight Savings Time (+1 hour) in summer months.
Read Daylight Savings Time	Esc CX↵	X20 ↵	
Set DHCP on or off	Esc X1 DH↵	Idh X1 ↵	
Read DHCP status	Esc DH↵	X1 ↵	
Set MKP IP address	Esc X21 CI↵	Ipi X21 ↵	
Read MKP IP address	Esc CI↵	X21 ↵	
Read hardware (MAC) address	Esc CH↵	X22 ↵	
Set subnet mask	Esc X21 CS↵	Ips X21 ↵	
Read subnet mask	Esc CS↵	X21 ↵	
Set gateway IP address	Esc X21 CG↵	Ipg X21 ↵	
Read gateway IP address	Esc CG↵	X21 ↵	

NOTE *The set target IP parameters command can be issued with **either** the target IP address (X21) **or** the connection priority (X23) variable, but not both. The response is as shown regardless of which variable is entered.*

Command/response table for MKP SIS commands (continued)

Command	ASCII Command (host to MKP)	Response (MKP to host)	Additional description
IP setup, continued			
Set target (switcher) IP parameters	Esc X21 — **or** — X23 SI↵	Sip X21 , X22 , X23 ↵	
Read target (switcher) IP parameters	Esc SI↵	X21 , X22 , X23 ↵	
Set target (switcher) password	Esc X24 PI↵	Spw X24 ↵	
NOTE *For the* set target password *command (Esc X24 PI↵), the password variable X24 can be either the administrator or the user password.*			
Clear target password	Esc • PI↵	Spw• ↵	
Read target password	Esc PI↵	****↵	
NOTE *The retuned value for the* read target password *command (Esc PI↵) is masked; the value is either empty (no return other than the ↵) if **no** switcher password is assigned, or four asterisks (****↵) if a password **is** assigned.*			
Set MKP administrator password	Esc X24 CA↵	Ipa X24 ↵	
Clear MKP administrator password	Esc • CA↵	Ipa • ↵	
Read MKP administrator password	Esc CA↵	X24 ↵	
NOTE *You must have an administrator password assigned before you can assign a user password.*			
NOTE *When you have connected multiple MKPs to control a switcher through a primary MKP control panel, do not set a user password on the primary MKP.*			
Set user password	Esc X24 CU↵	Ipu X24 ↵	
Clear user password	Esc • CU↵	Ipu • ↵	
Read user password	Esc CU↵	X24 ↵	
Switch Web page priority	Esc X25 Cpag↵	Iwp X25 ↵	
Read Web page priority	Esc Cpag↵	X25 ↵	
Set verbose mode	Esc X1 CV↵	Vrb X1 ↵	Set MKP to report changes from other sources.
Read verbose mode	Esc CV↵	X1 ↵	Read the verbose mode.
Read connection's security level	Esc CK↵	X10 ↵	

Chapter Five

HTML Operation

Downloading the Startup Page

Viewing System Status

Using the Configuration Pages

Using the File Management Page

Special Characters

You can use a Web browser, such as Microsoft's Internet Explorer, to configure the MKP through its Ethernet port, when it is connected via a LAN or WAN. The browser's display of the MKP's configuration has the appearance of Web pages. This chapter describes the factory-installed HTML pages, which are always available and cannot be erased or overwritten.

NOTE *If your Ethernet connection to the matrix switcher is unstable, try turning off the proxy server in your Web browser as follows:*

1. *In Microsoft's Internet Explore, select* Tools > Internet Options > Connections > LAN Settings.
2. *Clear the "*Use a proxy server...*" check box.*
3. *Click* Ok.

Downloading the Startup Page

Access the MKP using HTML pages as follows:

1. Start the Web browser program.
2. Enter the MKP's IP address in the browser's Address field.

NOTE *If the local system administrators have not changed the value, the factory-specified default, 192.168.254.253, is the correct value for this field.*

3. If you want the browser to display a page other than the default MKP 2000 Web page (such as a custom page that you have created and uploaded), enter a slash (/) after the address, and the name of the Web page file that you want to display.

NOTE *The browser's Address field should display the address in the following format:*
xxx.xxx.xxx.xxx/{optional_file_name.html}.

NOTE *Using any of the following characters results in an invalid name:*
{space} + ~ , @ = ‘ [ ] { } < > ’ “ ; : | \ *and* ?.

4. Press Enter on your keyboard. The MKP checks to see if it is password protected.
   - If the MKP is **not** password protected, proceed to step **6**.
   - If the MKP has a password, the network password prompt window appears (figure 5-1).

Figure 5-1 — Enter Network Password page

NOTE *A User Name entry is not required.*

5. In the Password field, enter the appropriate administrator or user password. Click OK.

   The MKP checks several possibilities, in the following order, and then responds accordingly:

   - If the address includes a specific file name, such as 10.13.156.10/file_name.html, the MKP downloads that HTML page.
   - If there is a file in the MKP's memory that is named "index.html," the MKP downloads "index.html" as the default startup page.
   - **If neither file is found**, the MKP downloads the System Status page (figure 5-2), which is the factory-installed default startup page with the file name "nortxe_index.html".

You can now select the tabs at the top of the screen to display additional pages that enable you to configure and control the MKP 2000.

Viewing System Status

The System Status page on the Status tab (figure 5-2) provides an overall view of the MKP's current settings, including the IP and gateway addresses, the RS-232 port settings, the voltage, and the connections. Changes to these settings can be made via the Configuration Web pages, SIS programming, and/or the MKP front panel.

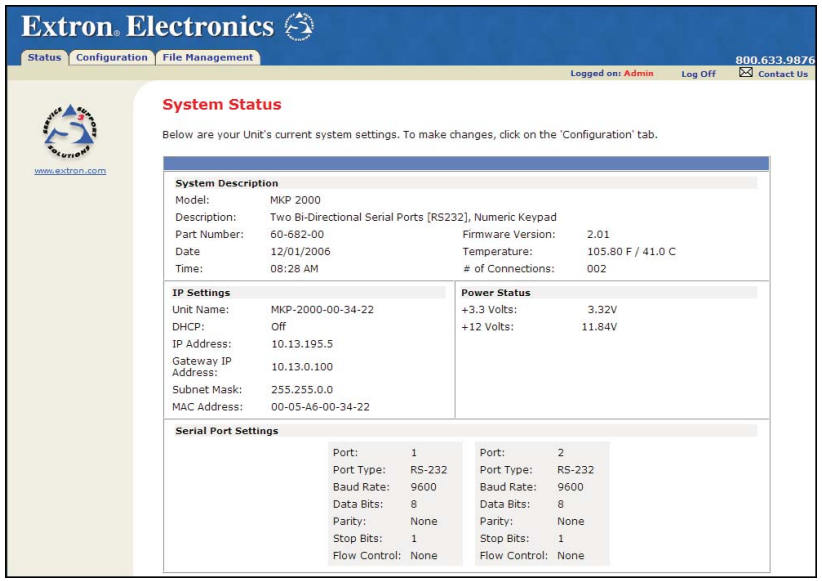


Figure 5-2 — System Status page

The System Status page is the default page that the MKP downloads when you connect to it. To access the System Status page from other MKP HTML web pages, click the Status tab.

This page shows only the current status of the MKP 2000. To change any of this information, select the Configuration tab to display the System Settings page.

NOTE *Personnel who have user access can view this page, but cannot access the Configuration pages; they see only the Status tab.*

Using the Configuration Pages

There are four Configuration Web pages, which only administrators can access. Links to them are listed in the sidebar menu at the left of the configuration screen. The following pages describe the changes you can make from these pages.

System Settings page

The System Settings page (figure 5-3) is divided into three sections: IP Settings, Switcher Control Settings, and Date/Time Settings. In each section, click Submit to enter your changes. Clicking the Cancel button in any section restores the previous settings, if the new values have not been submitted.

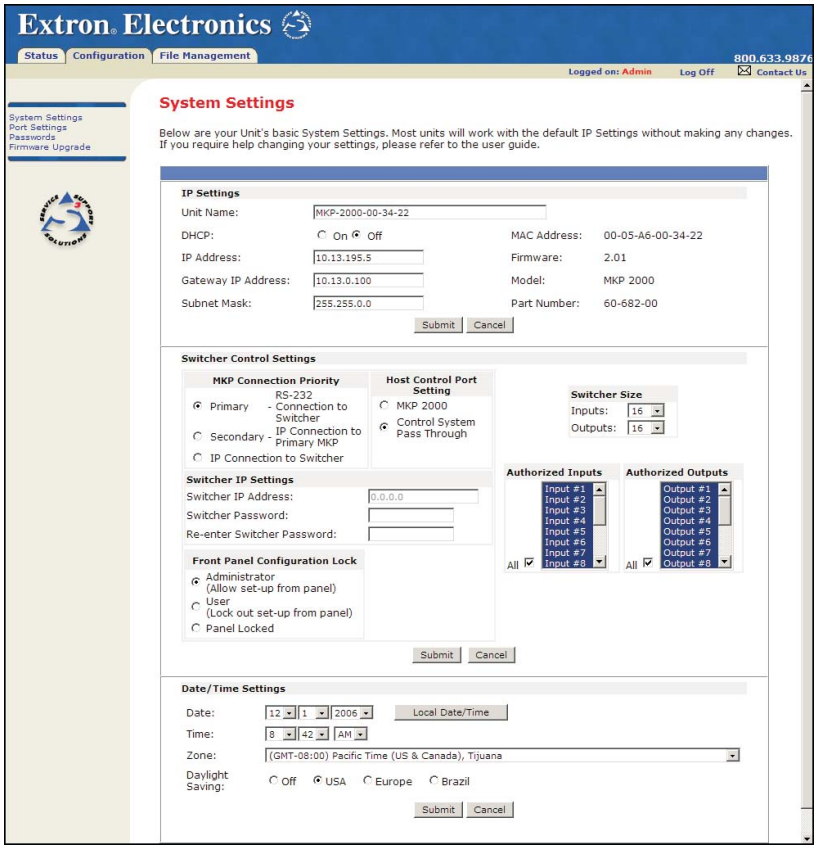


Figure 5-3 — System Settings page

IP Settings section

In this section, you enter all IP-related information for your MKP 2000. After making all desired changes to the fields in this section, click the Submit button at the bottom of the section to implement your changes. Click Cancel if you want to reject all your changes and restore the previous settings.

Unit Name field

The Unit Name field contains the locally-assigned name of the MKP. This name field can be changed to any valid name, up to 24 alphanumeric characters.

NOTE *Using any of the following characters results in an invalid name:*
+ ~ , @ = ' [ ] { } < > ' " ; : | \ and ?.

DHCP radio buttons

The DHCP On radio button directs the MKP to ignore any entered IP addresses and to obtain its IP address from a Dynamic Host Configuration Protocol (DHCP) server (if the network is DHCP capable).

The DHCP Off radio button turns DHCP off. Contact the local system administrator to determine if DHCP is appropriate.

IP Address field

The IP Address field contains the IP address of the MKP. This value is encoded in the MKP's flash memory.

Valid IP addresses consist of four 1-, 2-, or 3-digit numeric subfields (octets) separated by dots (periods). Each octet can be numbered from 000 through 255. Leading zeroes, up to three digits per field, are optional. Values of 256 and above are invalid.

The factory-installed default address is 192.168.254.253, but if this conflicts with other equipment at your installation, you can change the IP address to any valid value.

CAUTION *IP address changes can cause conflicts with other equipment. Only local system administrators should change IP addresses.*

Gateway IP Address field

The Gateway IP Address field identifies the address of the gateway to the switcher that will be used if the MKP and the switcher are not on the same subnet.

The gateway IP address has the same validity rules as the MKP's IP address. The default gateway address is 000.000.000.000.

Subnet Mask field

A subnet is a **sub**set of a **net**work — a set of IP devices that have portions of their IP addresses in common. The Subnet Mask field is used to determine whether the MKP is on the same subnet as the switcher's server when you are subnetting. The default is 255.255.000.000.

MAC Address field

The Media Access Control (MAC) address is hardcoded in the MKP and cannot be changed.

Firmware field

The Firmware field displays the currently version of firmware that is currently loaded on your MKP.

Model field

The Model field shows the name of your MKP model: MKP 2000.

Part Number field

The Part Number field contains the part number of your MKP model. For the MKP 2000, this field displays "60-682-00."

Switcher Control Settings section

This section contains switcher settings that can be configured via the MKP. After making all desired changes to the fields in this section, click the Submit button at the bottom of the section to implement your changes. Click Cancel if you want to reject all your changes and restore the previous settings.

MKP Connection Priority settings

Select the radio button for the type of connection that exists between the MKP and the switcher.

- **Primary – RS-232 Connection to Switcher** — The MKP directly controls the matrix switcher via its Switch RS-232 port.
- **Secondary – IP Connection to Primary MKP** — The MKP controls the switcher through another (primary) MKP's Internet address.
- **IP Connection to Switcher** — The MKP directly controls the switcher through the Ethernet (IP) port.

Host Control Port settings

If Primary – RS-232 has been selected in the MKP Connection Priority section, select one of the following radio buttons to specify how the Host RS-232 port will function:

- **MKP 2000 —** Commands received on the Host RS-232 port are executed by the MKP.
- **Pass Through —** Commands received on the Host RS-232 port are forwarded to the connected switcher via the Switch RS-232 port.

If either **Secondary – IP Connection to Primary MKP** or **IP Connection to Switcher** was selected in the MKP Connection Priority section, the Host Control Port Settings selections are grayed out and unavailable.

Switcher Size settings

The MKP cannot determine the matrix size of the switcher to which it is connected. You must use the Switcher Size drop boxes to specify the number of inputs and outputs.

The default switcher size is 16 x 16.

NOTE *After you set the size of the connected switcher's input/output matrix, if you attempt to use the front panel to tie to an input or output that is outside the available range for your MKP or your connected matrix switcher, the LED display shows* N-A.

Switcher IP settings/Primary MKP settings

Depending on the connection type selected in the MKP Connection Priority section, you can enter an IP address and password (if one was assigned) for the switcher or the MKP. The address and password are required for the MKP and the matrix switcher to communicate via their RJ-45 LAN connections. The default IP address value is 000.000.000.000.

- **Primary – RS-232 Connection to Switcher** — The IP address fields are unavailable.
- **Secondary – IP Connection to Primary MKP** — Enter the IP address and/or password for the MKP that is directly controlling the switcher (via IP or RS-232).
- **IP Connection to Switcher** — Enter the IP address and/or the password for the switcher.

Authorized Inputs and Authorized Outputs section

You can use the Authorized Inputs and Authorized Outputs drop boxes to narrow the number of inputs and outputs that are controllable from the MKP.

NOTE *When you have set the size of the connected switcher's input/output matrix, the LED display shows* N-A *if you attempt to tie to an input or output outside the available range for this MKP or the connected matrix switcher from the front panel.*

Front Panel Configuration Lock section

Select the radio button for the executive mode that locks or unlocks the MKP front panel. The available modes are:

Administrator — All front panel controls are unlocked.

User — Limited front panel control is enabled (input and output selection only). Panel configuration and IP and switcher addressing are not available.

Panel Locked — All front panel controls are locked and unavailable.

NOTE *This is the same function as the front panel security lock described in chapter 3, "Operation." The front panel can also be locked/unlocked via SIS commands, discussed in chapter 4, "SIS™ Operation."*

Date/Time Settings fields

The Date/Time Settings fields enable you to view and set the time functions. After making all desired changes to the fields in this section, click the Submit button at the bottom of the section to implement your changes. Click Cancel if you want to reject all your changes and restore the previous settings.

Change the date and time settings as follows:

1. In the desired Date/Time Settings field, click on the drop box for the variable that you want to change. The adjustable variables are month, day, year, hours, minutes, AM/PM, and (time) zone. A drop-down scroll box appears.
2. Click and drag the slider, or click the scroll up or scroll down button, until the desired variable is visible.
3. Click on the desired variable.

NOTE *If you are setting the time, set the local time. The Zone variable allows you to then enter the offset from Greenwich Mean Time (GMT).*

NOTE *The Zone field identifies the selected standard time zone and displays the amount of time, in hours and minutes, that the local time varies from the GMT international time reference.*

4. Repeat steps **1** through **3** for other date/time parameters that you want to change.
5. Select the appropriate Daylight Saving radio button. To turn off daylight savings time, select Off.

NOTE *When daylight savings time is enabled, the MKP updates its internal clock between Standard Time and Daylight Savings Time, on the dates that the time change occurs in the United States of America and parts of Europe and Brazil. When daylight savings time is turned off, the MKP does not adjust its time reference.*

Port (RS-232) Settings page

The Port Settings page (figure 5-4) allows you to configure the MKP's two RS-232 ports (Host and Switch). To access the Port Settings page, click the Port Settings link on the left sidebar menu on the Configuration tab.

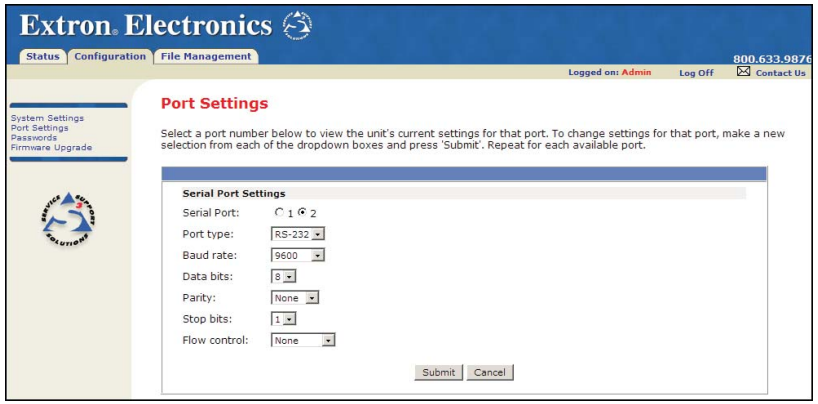


Figure 5-4 — Port Settings page

The Serial Port 1 radio button selects the Host RS-232 port, and the Serial Port 2 radio button selects the Switch RS-232 port.

To configure one of these ports,

1. Select Serial Port radio button 1 or 2.
2. Make selections from the drop boxes as desired to configure the selected port.

The Extron default settings for RS-232 ports are:

- Baud rate: **9600**
- Data bits: **8**
- Parity: **None**
- Stop bits: **1**
- Flow control: **None**

3. Click Submit to confirm your settings. (To reject the changes and restore the previous settings, click Cancel.)

Passwords page

The Passwords page (figure 5-5) lets you assign passwords to control access to the MKP 2000 Web pages.

Passwords are case sensitive and are limited to 12 uppercase and lowercase alphanumeric characters. Symbols and spaces are not allowed.

To access the Passwords page, click the Passwords link on the left sidebar menu on the Configuration tab.

NOTE *When you have connected multiple MKPs to control a switcher through a primary MKP control panel, do not set a user password on the primary MKP.*

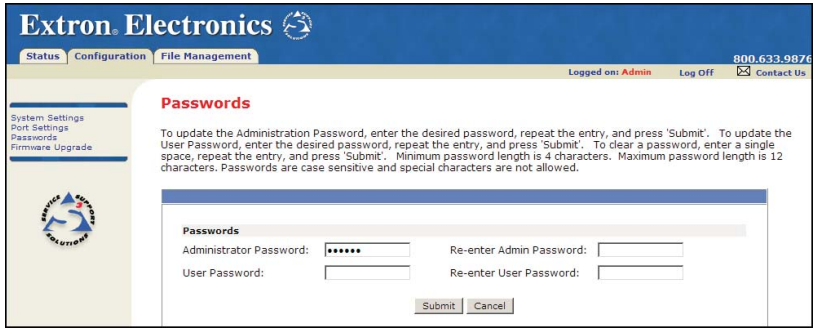

Extron Electronics
Status
Configuration
File Management
800.633.9876
Logged on: Admin
Log Off
Contact Us
System Settings
Port Settings
Passwords
Firmware Upgrade
Passwords
To update the Administration Password, enter the desired password, repeat the entry, and press 'Submit'. To update the User Password, enter the desired password, repeat the entry, and press 'Submit'. To clear a password, enter a single space, repeat the entry, and press 'Submit'. Minimum password length is 4 characters. Maximum password length is 12 characters. Passwords are case sensitive and special characters are not allowed.
Passwords
Administrator Password:
Re-enter Admin Password:
User Password:
Re-enter User Password:
Submit
Cancel

Figure 5-5 — Passwords page

Assigning a password

To assign passwords, follow these steps:

1. Enter the new administrator password in the Administrator Password field. Characters in these fields are masked (•••••) as you enter them.

NOTE *An administrator password must be created before a user password can be created.*

2. In the Re-enter Admin Password field, enter the same password again to confirm it.
3. If you want to assign a user password, enter it in the User Password field.

NOTE *You cannot assign a user password unless an administrator password has been assigned.*

4. Enter the same user password in the Re-enter the User Password field.
5. Click the Submit button to set the password(s).

Clearing a password

To remove an assigned password, follow these steps:

1. In the Administrator Password or User Password field, clear any text, then enter a single space.
2. Repeat step **1** in the Re-enter Admin Password or the Re-enter User Password field.
3. Click the Submit button.

Firmware Upgrade page

The Firmware Upgrade page (figure 5-6) enables you to replace the firmware that is coded on the MKP's control board without taking the MKP out of service, opening the enclosure, and replacing the firmware chip.

To access the Firmware Upgrade page, select the Firmware Upgrade link on the left sidebar menu of the Configuration tab.

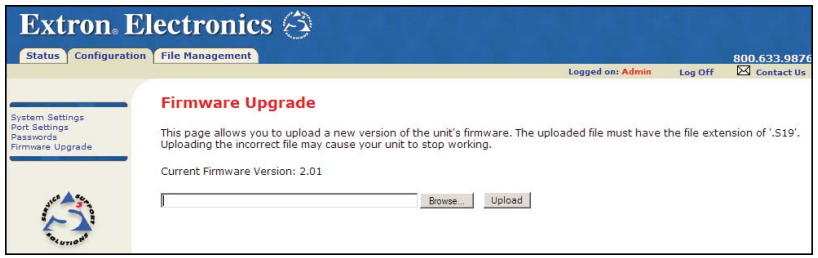


Figure 5-6 — Firmware Upgrade page

NOTE *The Firmware Upgrade page is **only** for replacing the firmware that controls all MKP operation. To insert your own HTML pages, see "Using the File Management Page," later in this chapter.*

Update the MKP firmware as follows:

1. Visit the Extron Web site at **www.extron.com**, and select either of the following:
   - Download tab > Firmware (from the sidebar menu) > MKP 2000
   - MKP 2000 product page > Downloads > MKP 2000 (in FIRMWARE section)
2. Select the latest firmware file for the MKP and download it. Note the folder to which you save the firmware file.

NOTE *The firmware's file name may read, in part, MKP 2000 or MKP 3000. This is normal; the firmware is the same for both products.*

3. Connect the MKP to your computer via the MKP's Ethernet port.
4. Access the MKP using the HTML pages.
5. Select the Configuration tab.
6. Click the Firmware Upgrade link on the left sidebar menu.
7. On the Firmware Upgrade page, click the Browse button. A Choose File window opens (figure 5-7).

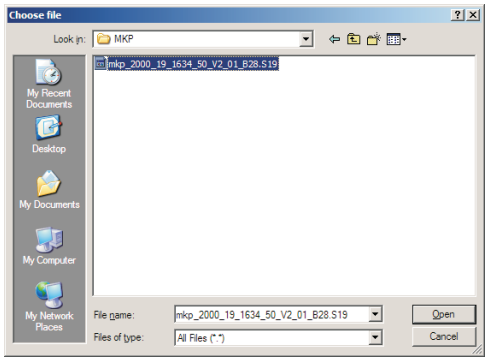


Figure 5-7 — Firmware upgrade Choose file window

8. Navigate to the folder where you saved the firmware upgrade file, and open the file. Its name is displayed in the field below "Current Firmware Version x.xx" on the Firmware Upgrade page.

CAUTION *Valid firmware files must have the file extension **.S19**. Any other file extension is **not** a firmware upgrade; uploading it could cause the MKP to stop functioning.*

NOTE *The original factory-installed firmware is permanently available on the MKP. If the attempted firmware upload fails for any reason, the MKP automatically reverts to the factory-installed firmware.*

9. On the Firmware Upgrade page, click the Upload button to start the update process.

   The firmware upload to the MKP may take several minutes. While the firmware is being uploaded, the Upload button changes to Uploading..., and the MKP's LED display shows **UPL**, then **777**, and then the firmware version number.

CAUTION *While the firmware is uploading, do not press any front panel buttons or submit any selections on the Web pages.*

   When the LED display shows **...** , the firmware upload is complete.

After you have uploaded the firmware to the MKP, refresh the Web page. The version number of the newly uploaded firmware is displayed on the System Status page (outlined in figure 5-8), and on the Firmware Upgrade page.

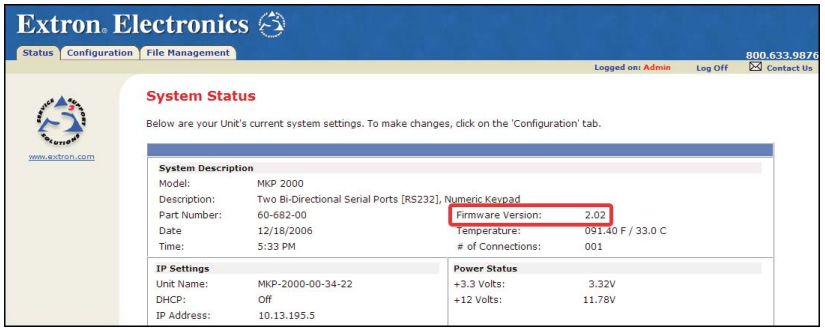


Figure 5-8 — Current firmware version on the System Status page

Updating the firmware using a direct computer-to-MKP connection

If you have no network access available, you can upgrade the MKP firmware via a direct connection between your computer and the MKP. Your computer must have Microsoft Windows® 2000, XP, or higher loaded.

NOTE *You can obtain the latest version of firmware only by downloading it from the Extron Web site. If the computer to which your MKP is connected has no network access, you must download the firmware to another computer that has network access, then copy it to your computer's hard disk.*

1. Connect a crossover cable from the LAN port on your computer to the MKP's LAN port.
2. On the Windows Start menu on your computer, right click on My Network Places.
3. From the pop-up menu that appears, select Properties. The Network Connections window opens.
4. Right click on Local Area Connection, and select Properties from the pop-up menu.
5. On the Local Area Connection window, select Internet Protocol (TCP/IP), and click the Properties button. The Internet Protocol (TCP/IP) properties window opens.
6. Write down the existing IP address and subnet mask shown on the IP properties window. You will need these later in order to restore your computer's settings after you configure the MKP for internet use.
7. Select the "Use the following IP address" radio button.
8. If your MKP has not had an IP address assigned to it and is still using its factory default address, enter the following address in the IP Address field: **192.168.254.252**.

   If an IP address has been assigned to your MKP, enter a temporary address for your computer that is in the same subnet as the MKP's. (Your system administrator should have this information.)
9. Enter **255.255.0.0** in the Subnet Mask field. If required, enter the gateway address in the Default Gateway field. (Your system administrator can provide this information.)
10. Click OK, and close the remaining windows.
11. Open Internet Explorer, and enter the IP address of your MKP in the Address field.

If the MKP has not been assigned an IP address, enter the factory default address: **192.168.254.253**.

12. Press Enter on your keyboard. The System Status Web page is displayed.

13. Perform the Firmware Upgrade procedure, beginning with step **5** (page 5-13).

Using the File Management Page

The File Management page (figure 5-9) lets you upload files to the MKP 2000 from your computer or network, and to delete files from the unit. You can also upload personalized Web pages or event files to the MKP via this screen. To display the File Management page, select the File Management tab.

NOTE *If you want one of the pages that you create and upload to be the default startup page, name that file "index.html."*

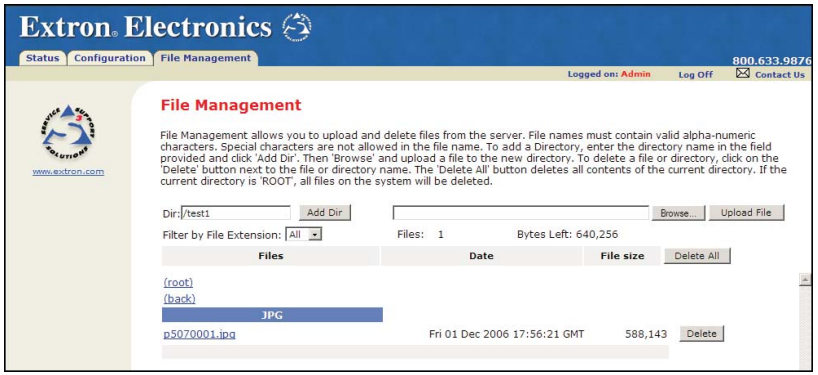

Extron Electronics
Status
Configuration
File Management
800.633.9876
Logged on: Admin
Log Off
Contact Us
www.extron.com
File Management
File Management allows you to upload and delete files from the server. File names must contain valid alpha-numeric characters. Special characters are not allowed in the file name. To add a Directory, enter the directory name in the field provided and click 'Add Dir'. Then 'Browse' and upload a file to the new directory. To delete a file or directory, click on the 'Delete' button next to the file or directory name. The 'Delete All' button deletes all contents of the current directory. If the current directory is 'ROOT', all files on the system will be deleted.
Dir:/test1
Add Dir
Browse...
Upload File
Filter by File Extension: All
Files: 1
Bytes Left: 640,256
Files
Date
File size
Delete All
(root)
(back)
JPG
p5070001.jpg
Fri 01 Dec 2006 17:56:21 GMT
588,143
Delete

Figure 5-9 — File Management page

NOTE *The files listed in figure 5-9 are shown as examples only and may not be present on your MKP 2000.*

Uploading files

Files to be uploaded to the MKP 2000 must contain only valid alphanumeric characters and underscores. No spaces or special characters (symbols) are allowed.

NOTE *Using any of the following characters results in an invalid name:*
{space} + ~ @ = [ ] { } < > ' " ; : | \ *and* ?.

To upload files from the server, follow these steps:

1. Click the Browse button to the right of the file name field.
2. Browse to locate the file that you want to upload, and open it. The file's name and directory path are displayed in the file name field on the File Management screen.
3. Click the Upload File button. The selected file name appears in the Files column on the File Management screen. (Files are listed separately under headings of their extensions.)

Adding a directory

To add a directory or folder to the MKP's file system, follow these steps:

1. Enter the directory name in the Dir: field, following the slash (/).
2. Click the Add Dir button.
3. With the directory name displayed, perform the Uploading files procedure described in the previous section to add a file to the directory. The directory name appears at the top of the Files column, preceded by a slash.

To add more files to the directory, click the directory name to open it, then use the uploading files procedure. To exit the directory, click (root).

Other file management activities

You can also perform the following tasks on the File Management screen:

Opening a file — Click on the name of the file in the Files column.

Deleting a file — Click the Delete button at the right end of the line that contains the name of the file you want to remove.

Deleting all files — Click the Delete All button.

Selecting a file — From the Select menu, select a file name, or select All to select all uploaded files.

Special Characters

The HTML language reserves certain characters for specific functions. The MKP does not accept these characters as part of its name, passwords, or locally created file names. Valid file names:

- Are a maximum of 24 uppercase or lowercase alphanumeric characters
- Cannot include spaces or underscore characters
- Cannot start with a number or a dash
- Cannot end with a dash

NOTE *These guidelines do not apply to input, output, and preset names.*

Appendix A

Reference Information

Specifications

Part Numbers

Mounting and Cabling Specifications

Specifications

Control/remote — keypad

Serial control port	(2) RS-232 on (2) 3.5 mm, 3-pole captive screw connectors
Baud rate and protocol	Variable (9600 to 115200 baud), 9600 baud (default), 8 data bits, 1 stop bit, no parity
Serial control pin configurations	1 = TX, 2 = RX, 3 = GND
Ethernet control port	1 RJ-45 female connector
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet protocol	ARP, DHCP, ICMP (ping), TCP/IP, Telnet, HTTP, SMTP client
Ethernet default settings	Link speed and duplex level = autodetected IP address = 192.168.254.253, subnet mask = 255.255.0.0, default gateway = 0.0.0.0 DHCP = off
Program control	Extron's Simple Instruction Set (SIS™) Microsoft® Internet Explorer, Telnet

General

External power supply	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 350 mA
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount	No, but furniture/wall mountable in a wall box
Enclosure type	Metal
Enclosure dimensions	
Plate	4.5" H x 4.6" W x 0.1" D (2 gang) (11.4 cm H x 11.7 cm W x 0.3 cm D)
Enclosure	2.7" H x 3.4" W x 2.0" D (6.7 cm H x 8.6 cm W x 5.1 cm D) Allow at least 1" (2.5 cm) D for connectors and cable. (Depth excludes connectors.)
Product weight	0.4 lbs (0.2 kg)
Shipping weight	2 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE *All nominal levels are at ±10%.*

NOTE *Specifications are subject to change without notice.*

Part Numbers

MKP 2000 Remote Control Panel	Part number
MKP 2000, black	60-682-02
MKP 2000, white	60-682-03
MKP 2000, RAL 9010 white	60-682-05

Included parts

These items are included in each order for an MKP 2000:

Included parts	Part number
12 VDC, 1A external power supply	70-055-01
MKP 2000 User's Manual	
MR 200 two-gang mounting brackets (mud rings) (black, white)	70-519-22, -23

Installation accessories

Accessories	Part number
Two-gang "J" box 2.5" deep	980084

Optional accessories

Accessories	Part number
PS 123 Rack mountable, multiple output Power Supply	60-814-01

Cables

Cables		Part number
Comm-Link Cable	Cut lengths:	
	50 feet (15.2 m)	26-461-01
	100 feet (30 m)	26-461-02
	200 feet (60 m)	26-461-03
	300 feet (90 m)	26-461-05
	400 feet (120 m)	26-461-04
	Bulk spools:	
	500 feet (152 m)	22-119-02
	1,000 feet (305 m)	22-119-03

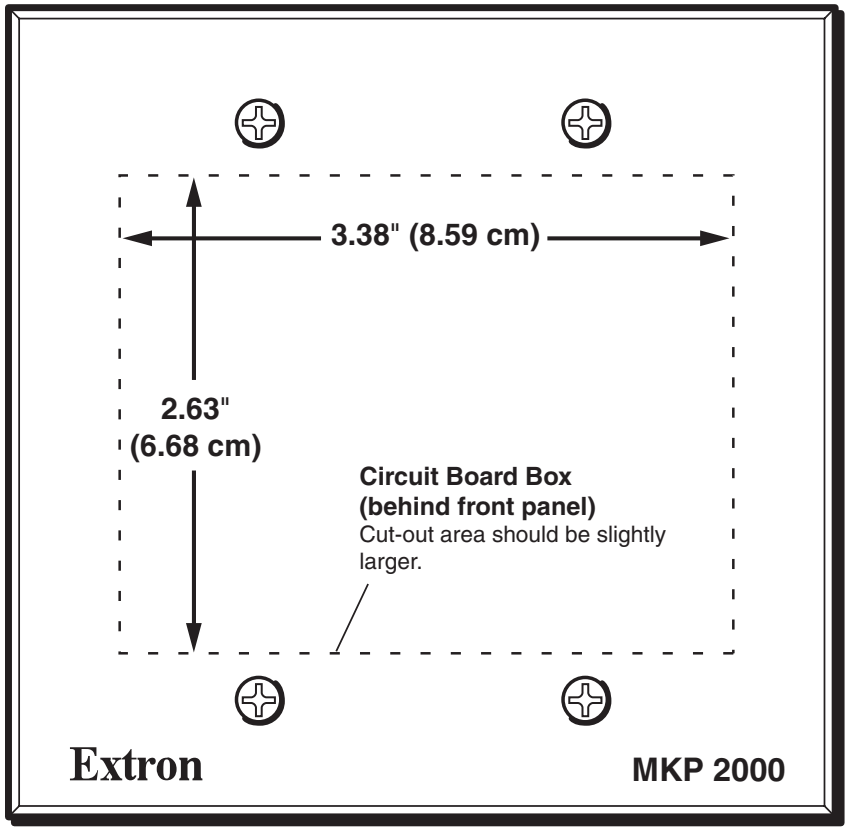
Mounting and Cabling Specifications

Electrical box cutout

Any standard box that meets the local electrical codes can be used, but boxes from different manufacturers may have different size openings. Extron recommends testing the fit of the MKP inside the electrical box and then placing the box flush against the mounting surface and tracing the cutout area.

Panel mount cutout template

Figure A-1 is a drawing that shows the dimensions for cutting a hole to accommodate the keypad circuit board for mounting an MKP 2000 on a flat surface. This type of installation can include a desk or podium, or a control panel or dashboard, where the back is protected and does not require an electrical box.



Full Size

Figure A-1 — Panel mount cutout template

Extron Control System Comm-Link cable

Wire specifications for Extron Comm-Link cable (figure A-2) are as follows:

A (red) = 18 American Wire Gauge (AWG)
B (violet or blue) = 22 AWG (grouped and shielded)
C (white) = 22 AWG
D (drain) = 24 AWG
E (black) = 18 AWG

NOTE *Comm-Link cable was designed for use with MKP control panels.*

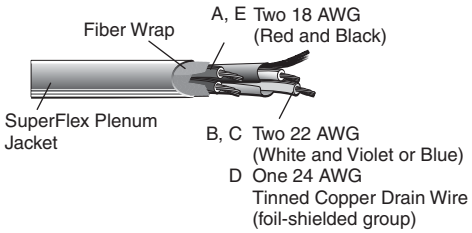


Figure A-2 — Extron Comm-Link cable